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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/616,310	07/07/2003	Hagai Aronowitz	42P16791	1859
59796	7590	12/13/2007		
INTEL CORPORATION c/o INTELLEVATE, LLC P.O. BOX 52050 MINNEAPOLIS, MN 55402			EXAMINER JACKSON, JAKIEDA R	
			ART UNIT 2626	PAPER NUMBER
			MAIL DATE 12/13/2007	DELIVERY MODE PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/616,310

Applicant(s)

ARONOWITZ, HAGAI

Examiner

Jakieda R. Jackson

Art Unit

2626

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 November 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-7,15,17-20,24,26,27,37,39,41-43,51,53,55 and 56 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-7,15,17-20,24,26,27,37,39,41-43,51,53,55 and 56 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 15, 2007 has been entered.

Response to Arguments

2. Applicant argues that Wolf does not specifically teach determining vertices and arc parameters of the phoneme lattice for the input speech signal. Applicant's arguments are persuasive, but are moot in view of new grounds of rejections.

Applicant further argues that Wolf only discloses a word lattice while the present application discloses a phoneme lattice. Applicant's arguments are not persuasive. Wolf teaches a phoneme lattice (column 2, paragraph 0023 and column 4, paragraph 0055).

Applicant further argues that Wolf does not disclose the client and server aspect of claim 31 and the dependent claims, claims 32-33, that depend therefrom are not anticipated By Wolf either. However, claims 31-33 have been canceled.

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Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. **Claim 1, 3-4, 7, 15, 17-20, 24, 26-27, 37, 39, 43, 51, 53 and 55-56** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf et al. (PGPUB 2003/0204399), hereinafter referenced as Wolf in view of Baker (PGPUB 2004/0267529) and in further view of Wegmann et al. (USPN 6,224,636), hereinafter referenced as Wegmann.

Regarding **claims 1 and 37**, Wolf discloses a method, system and article, hereinafter referenced as a method for processing a speech signal, comprising:

receiving an input speech signal (spoken queries; column 1, paragraph 0013);
constructing a phoneme lattice for the input speech signal (lattice; column 2, paragraphs 0020-23 with column 4, paragraph 0055);

searching the phoneme lattice to produce a likelihood score for each potential path (likelihood of paths; column 3, paragraph 0038);

determining a processing result for the input speech signal based on the likelihood score of each potential path (likelihood scores of path; column 3, paragraphs 0033-0040);

segmenting an input speech signal into frames (word-level lattices; column 2, paragraph 0020 with column 3, paragraphs 0033-0040);

extracting acoustic features for a frame of the input speech signal (acoustic information; column 2, paragraphs 0022-0023 with column 1, paragraph 0013);

determining K-best initial phoneme paths leading to the frame based on a first score of each potential phoneme path leading to the frame (best scoring path; column 3, paragraphs 0033-0040); and

calculating a second score for each of the K-best phoneme paths for the frame (confidence scores; column 2, paragraph 0021 with column 3, paragraphs 0033-0040), but does not specifically teach determining vertices and arc parameters of the phoneme lattice for the input speech signal.

Baker discloses a speech recognition method comprising determining arc parameters of the phoneme lattice for the input speech signal (arc; column 5, paragraph 0053 and column 7, paragraph 0073), to implement grammar specification, so know what the state of the system will be at the end of the next word.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wolf's method wherein it determines arc parameters of the phoneme lattice for the input speech signal, as taught by Baker, to determine a best matching path to enhance the speech recognition performed (column 1, paragraph 0003).

Wolf in view of Baker discloses a speech recognition method, but does not specifically teach determining vertices.

Wegmann discloses a method of determining vertices (column 8, line 36 - column 9, line 65), to construct a recognition hypothesis.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wolf in view of Baker's method wherein it generates vertices, as taught by Wegmann, such that the recognition hypothesis corresponds to a path through the lattice (Column 8, lines 36-50).

Regarding **claims 3, 17, 39 and 53**, it is interpreted and rejected for the same reasons as set forth in claim 1. In addition Wolf discloses a method further comprising:

clustering together K-best initial phoneme paths for at least one consecutive frame (single best scoring path; column 3, paragraphs 0033-0040); and

selecting M-best refined phoneme paths among the clustered phoneme paths based on second scores of these paths (best scoring path; column 3, paragraphs 0033-0040).

Regarding **claims 4, 18 and 26**, Wolf discloses a method wherein the first score and the second score comprise a score based on phoneme acoustic models and language models (model; column 2, paragraph 0024 with column 4, paragraphs 0051-0055).

Regarding **claims 7 and 43**, Wolf discloses a method wherein determining the processing result comprises determining at least one of the following: at least one candidate textual representation of the input speech signal and a likelihood that the input speech signal contains targeted keywords (text transcript; column 1, paragraph 0006).

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Regarding **claims 15 and 51**, it is interpreted and rejected for the same reasons as set forth in claim 1. In addition, Wolf discloses a method for distributing speech processing, comprising:

receiving an input speech signal by a client (spoken query; column 3, paragraphs 0033-0040);

constructing a phoneme lattice for the input speech signal by the client (lattice; column 3, paragraphs 0033-0040 with column 4, paragraph 0040);

transmitting the phoneme lattice from the client to a server (column 3, paragraphs 0033-0040 with column 4, paragraph 0040); and

searching the phoneme lattice to produce a result for the input speech signal for the purpose of at least one of recognizing speech and spotting keywords, in the input speech signal (speech recognition; column 3, paragraphs 0033-0040 with column 4, paragraph 0040).

Regarding **claims 19 and 55**, they are interpreted and rejected for the same reasons as set forth in claim 5. In addition, Wolf discloses a method wherein searching the phoneme lattice comprises:

determining a search result for the input audio signal based on the modified score of each searched path (dividing the scores; column 3, paragraphs 0033-0040).

Regarding **claims 20 and 56**, Wolf discloses a method wherein modifying the score comprises adjusting the score by at least one of the following: allowing repetition of phonemes and allowing flexible endpoints for phonemes in a path (expanded to their most frequent; column 4, paragraphs 0047-0049).

Regarding **claims 24**, it is interpreted and rejected for the same reason as set forth in claim 15. In addition, Wolf discloses a speech processing system comprising:

a plurality of models for lattice construction (column 3, paragraphs 0033-0040 and column 4, paragraph 0055); and

a plurality of models for lattice search (column 3, paragraphs 0033-0040 and column 4, paragraph 0055).

Regarding **claim 27**, it is interpreted and rejected for the same reasons as set forth in the combination of claims 21 and 24.

5. **Claims 5-6 and 41-42** are rejected under 35 U.S.C. 103(a) as being unpatentable over Wolf in view Baker and Wegmann and in further view of Van Thong et al. (USPN 6,985,861), hereinafter referenced as Van Thong.

Regarding **claims 5 and 41**, Wolf in view Baker and Wegmann discloses a method wherein searching the phoneme lattice comprises:

receiving a phoneme lattice (Wolf; column 4, paragraph 0055);

traversing the phoneme lattice via potential paths (Wolf; column 3, paragraphs 0033-0040); and

modifying the score for the traversed path (Wolf; column 3, paragraphs 0033-0040), but does not specifically teach computing a score for a traversed path based on at least one of a phoneme confusion matrix and a plurality of language models.

Van Thong teaches a method comprising teach computing a score for a traversed path based on at least one of a phoneme confusion matrix (column 7, lines 33-62) and a plurality of language models (column 1, lines 29-36), to compute the N-best lists.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Wolf in view Baker and Wegmann's method wherein it comprises computing a score for a traversed path based on at least one of a phoneme confusion matrix and a plurality of language models, as taught by Van Thong, to store the likelihood of confusion pairs of phonemes (column 7, lines 33-62) and to obtain the N-best lists (column 1, lines 29-36),

Regarding **claims 6 and 42**, Wolf discloses a method wherein modifying the score comprises adjusting the score by at least one of the following: allowing repetition of phonemes and allowing flexible endpoints for phonemes in a path (expanded to their most frequent; column 4, paragraphs 0047-0049).

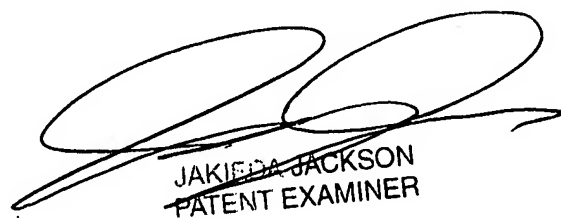
Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jakieda R. Jackson whose telephone number is 571-272-7619. The examiner can normally be reached on Monday-Friday from 5:30am-2:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JRJ
December 9, 2007



JAKIEDA JACKSON
PATENT EXAMINER